

LAKE: PEMAQUID P (VLMP 15 )  
 TOWN: NOBLEBORO  
 COUNTY: LINCOLN

MIDAS: 5704  
 TRUE BASIN: 1  
 SAMPLE STATION: 1

WHOLE LAKE INFORMATION

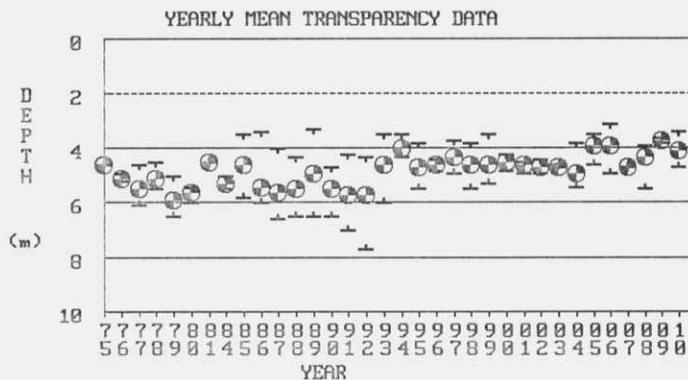
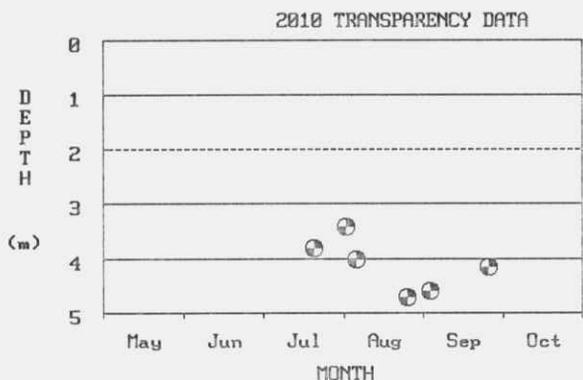
MAX. DEPTH: 19 m. (61 ft.)  
 MEAN DEPTH: 6 m. (20 ft.)  
 DELORME ATLAS #: 07  
 USGS QUAD: WALDOBORO WEST  
 IFW REGION B: Belgrade Lakes (Augusta)  
 IFW FISH. MANAGMENT: Warmwater & Coldwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 583.0 ha. (1440.6 a.)  
 FLUSHING RATE: 1.10 flushes/yr.  
 VOLUME: 31659000.0 cu. m. (25682 ac.-ft.)  
 DIRECT DRAINAGE AREA: 24.30 sq. km. (9.38 sq. mi.)

PLEASE NOTE THE FOLLOWING: The SAMPLE STATION # refers to the location sampled. The term TRUE BASIN is used to define areas within a lake that are separated by shallow reefs or shoals and therefore function as separate lakes. There are approximately 50 lakes in the state that have more than 1 True Basin. True Basin Characteristics are now being included in the first section of these reports to enable users of the Phosphorous Loading Methodology to better evaluate the data. If there is no data for a particular True Basin, True Basin Characteristics must be obtained from the DEP. PEMAQUID P has 1 True Basin(s).

SECCHI DISK TRANSPARENCY GRAPHS:



Note: 2010 graphs may indicate multiple readings taken on a given day.

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

[\* indicates that Secchi disk was visible at bottom of lake (or one reading used in calculation was visible)].

YEAR	MEAN COLOR	MEAN pH	MEAN ALK	MEAN COND.	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A(ppb)			TROPHIC STATE INDICES			
	(SPU)		(mg/l)	(uS	EPI	SURF	BOT.	PRO.	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	C	G	SEC	CHL
				/cm)	CORE	GRAB	GRAB	GRAB											
1975	-	-	-	-	-	-	-	-	4.6	4.6	4.6	2	-	-	-	-	-	-	-
1976	20	6.40	13.0	32	8	-	14	17	4.9	5.1	5.2	2	1.4	3.5	5.5	-	-	-	-
1977	-	-	-	-	-	-	-	-	4.6	5.5	6.1	5	-	-	-	-	-	43	-
1978	-	-	-	-	-	7	-	-	4.5	5.1	5.5	5	-	-	-	-	-	47	-
1979	-	-	-	-	-	-	-	-	5.0	5.9	6.5	3	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	5.4	5.6	6.0	3	-	-	-	-	-	-	-
1981	30	6.60	6.0	31	9	-	15	-	4.5	4.5	4.5	1	4.0	4.0	4.0	-	-	-	-
1984	-	-	-	-	8	-	12	-	5.0	5.3	5.5	2	3.9	3.9	3.9	-	-	-	-
1985	-	-	-	-	-	-	-	-	3.5	4.6	5.8	4	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-	3.4	5.4	6.0	5	-	-	-	-	-	44	-
1987	22	6.90	6.0	46	10	-	18	-	4.0	5.6	6.6	6	-	-	-	-	-	43	-
1988	25	6.50	6.0	-	10	-	16	-	4.3	5.5	6.5	6	-	-	-	-	-	43	-
1989	-	-	-	-	-	-	-	-	3.3	4.9	6.5	6	-	-	-	-	-	49	-
1990	-	-	-	-	-	-	-	-	4.7	5.5	6.5	6	-	-	-	-	-	43	-
1991	28	6.97	7.0	41	6	-	-	-	4.2	5.7	7.0	5	2.6	2.6	2.6	-	-	42	-

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 TOWN: NOBLEBORO  
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MIDAS: 5704  
 \*TRUE BASIN: 1  
 \*SAMPLE STATION: 1

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

YEAR	MEAN	MEAN	MEAN	MEAN	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A(ppb)			TROPHIC STATE INDICES			
	COLOR (SPU)	pH	ALK (mg/l)	COND. (uS/cm)	EPI CORE	SURF GRAB	BOT. GRAB	PRO. GRAB	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	EPI PHOS		SEC	CHL
1992	-	-	-	-	-	-	-	-	4.3	5.7	7.7	5	-	-	-	-	-	42	-
1993	-	-	-	-	-	-	-	-	3.5	4.6	6.0	6	-	-	-	-	-	53	-
1994	-	-	-	-	-	-	-	-	3.5	4.0	4.3	6	-	-	-	-	-	60	-
1995	-	-	-	-	-	-	-	-	3.8	4.7	5.5	5	-	-	-	-	-	52	-
1996	-	-	-	-	-	-	-	-	4.4	4.6	4.8	5	-	-	-	-	-	53	-
1997	-	-	-	-	-	-	-	-	3.7	4.3	4.9	5	-	-	-	-	-	56	-
1998	-	-	-	-	-	-	-	-	3.8	4.6	5.5	5	-	-	-	-	-	53	-
1999	21	-	7.0	47	17	-	24	-	3.5	4.6	5.3	4	4.4	4.4	4.4	-	-	-	-
2000	-	-	-	-	-	-	-	-	4.2	4.5	4.8	5	-	-	-	-	-	54	-
2001	-	-	-	-	-	-	-	-	4.5	4.6	4.9	5	-	-	-	-	-	53	-
2002	-	-	-	-	-	-	-	-	4.4	4.7	4.9	5	-	-	-	-	-	52	-
2003	-	-	-	-	-	-	-	-	4.6	4.7	4.7	5	-	-	-	-	-	52	-
2004	26	6.94	8.0	55	8	-	19	-	3.8	4.9	5.4	6	5.3	5.3	5.3	-	-	49	-
2005	-	-	-	-	-	-	-	-	3.5	3.9	4.6	5	-	-	-	-	-	62	-
2006	-	-	-	-	-	-	-	-	3.1	3.9	4.9	6	-	-	-	-	-	62	-
2007	-	-	-	-	-	-	-	-	4.7	4.7	4.7	1	-	-	-	-	-	-	-
2008	28	6.81	5.5	42	8	-	13	-	3.9	4.3	5.5	5	4.7	5.1	5.4	-	-	56	-
2009	-	-	-	-	-	-	-	-	3.6	3.7	3.8	3	-	-	-	-	-	-	-
2010	-	-	-	-	10	-	27	-	3.4	4.1	4.7	3	4.3	4.3	4.3	-	-	-	-
SUMMARY:	25	6.68	7.3	42	9	7	17	17	3.1	4.8	7.7	34	1.4	4.1	5.5	-	-	51	-

LATE SUMMER TEMPERATURE / DISSOLVED OXYGEN PROFILES:

DEPTH	SAMPLE DATE															
	08/30/02		08/16/04		08/01/05		08/22/06		08/21/07		08/21/08		09/02/08		08/24/10	
m	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm
0.0	22.7	7.6	23.0	7.6	25.0	8.1	23.1	7.8	22.4	8.2	22.8	7.8	22.4	8.6	23.2	6.7
1.0	22.6	7.6	22.9	7.8	25.0	8.0	22.8	7.8	22.2	8.3	22.6	7.7	22.4	8.6	23.1	6.6
2.0	22.5	7.6	22.6	7.6	25.0	8.1	22.7	7.8	21.7	8.2	22.4	7.8	22.3	8.6	23.0	6.5
3.0	22.5	7.5	22.5	7.4	25.0	8.1	22.7	7.8	21.6	8.0	22.2	7.8	22.3	8.5	22.9	6.5
4.0	22.4	7.4	22.4	7.4	24.4	7.8	22.7	7.8	21.5	7.9	22.0	7.6	22.3	8.5	22.8	6.6
5.0	22.4	7.5	22.4	7.3	23.7	7.1	22.6	7.7	21.5	7.8	21.9	7.6	22.2	8.5	22.7	6.6
6.0	22.3	7.3	22.2	6.4	18.2	3.2	21.7	5.9	21.5	7.7	21.7	7.5	22.2	8.4	22.7	6.6
7.0	21.9	4.8	21.7	5.6	14.8	3.0	21.4	5.6	21.0	6.7	21.3	5.7	21.9	8.0	22.6	6.8
8.0	19.9	1.0	19.3	1.8	13.3	3.2	18.7	2.0	18.1	2.4	20.1	3.3	21.8	8.0	19.7	0.5
9.0	17.3	0.5	16.6	0.5	12.9	3.1	15.9	1.2	15.2	2.1	18.3	0.7	20.1	1.5	17.3	0.2
10.0	16.2	0.5	15.5	0.7	12.5	3.5	15.3	1.2	14.0	2.3	16.0	0.3	17.9	0.0	16.1	0.2
11.0	15.2	0.4	14.2	0.8	12.2	3.4	14.7	1.5	13.2	2.4	14.0	0.2	14.1	0.0	14.8	0.2
12.0	14.0	0.4	13.1	0.5	11.9	3.4	13.6	1.2	11.7	2.4	11.9	0.3	12.2	0.0	13.3	0.2
13.0	13.3	0.3	12.1	0.3	11.6	3.1	12.5	1.0	11.0	2.2	10.2	0.4	10.8	0.0	11.7	0.2
14.0	12.6	0.3	11.2	0.2	11.4	2.9	11.8	0.8	10.7	2.0	9.5	0.2	9.9	0.0	11.4	0.2
15.0	11.9	0.3	10.7	0.2	11.3	2.5	11.6	0.7	10.5	1.8	9.1	0.2	9.6	0.0	10.9	0.2
16.0	11.7	0.3	10.4	0.2	11.2	2.3	11.1	0.7	10.4	1.5	8.8	0.2	9.5	0.0	-	-
17.0	11.6	0.3	-	-	11.2	2.0	10.9	0.7	10.3	1.5	8.6	0.2	9.4	0.0	-	-
18.0	11.5	0.3	-	-	11.1	1.3	10.8	0.7	-	-	8.5	0.2	-	-	-	-

## WATER QUALITY SUMMARY

### **PEMAQUID POND, NOBLEBORO**

MIDAS: 5704, Sample Station # 1

The Maine Department of Environmental Protection (ME-DEP) and the Volunteer Lake Monitoring Program (VLMP) have collaborated in the collection of lake data to evaluate water quality, track algal blooms, and determine water quality trends. This dataset does not include bacteria, mercury, or nutrients other than phosphorus.

Water quality monitoring data for Pemaquid Pond have been collected since 1975. During this period, 8 years of basic chemical information was collected in addition to 33 years of Secchi Disk Transparencies (SDT). In summary, the water quality of Pemaquid Pond is considered average, based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Pemaquid Pond is low.

Water Quality Measures: Pemaquid Pond is a non-colored lake (average color 25 SPU) with an average SDT of 4.8 m (15.2 ft). Water column TP for Pemaquid Pond is moderate, ranging from 6 - 17 parts per billion (ppb) with an average of 9 ppb. Chla values are moderate, ranging from 1.4 - 5.5 ppb with an average of 4.1 ppb. Recent dissolved oxygen (DO) profiles show moderate DO depletion in deep areas of the lake. The potential for phosphorus to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate to high. Oxygen levels below 5 parts per million stress certain cold water fish and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species.

See ME-DEP Explanation of Lake Water Quality Monitoring Report for measured variable explanations. Additional lake information can be found on the Internet at <http://www.lakesofmaine.org/> and/or <http://www.maine.gov/dep/blwq/lake.htm>, or telephone the ME-DEP at 207-287-3901 or the VLMP at 207-783-7733.

Filename: pem15704, Revised: 12/04; by KH Updated: 2/11, By: jp

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 TOWN: NOBLEBORO  
 COUNTY: LINCOLN

MIDAS: 5704  
 TRUE BASIN: 1  
 SAMPLE STATION: 2

WHOLE LAKE INFORMATION

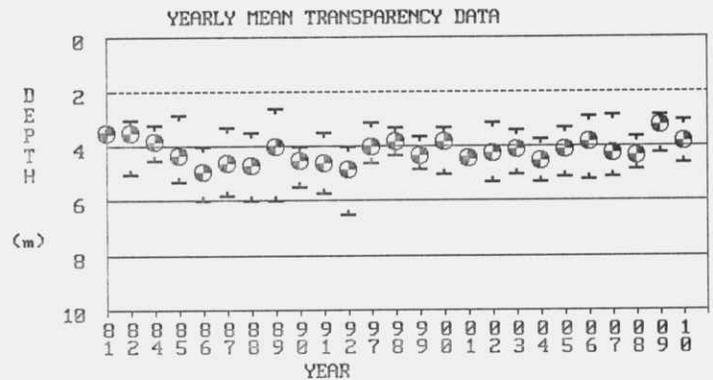
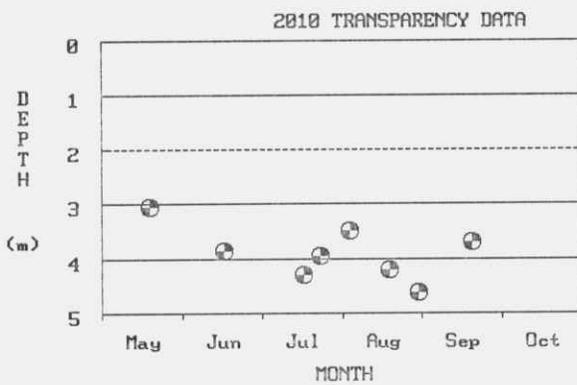
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 DELORME ATLAS #: 07  
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 IFW REGION B: Belgrade Lakes (Augusta)  
 IFW FISH. MANAGMENT: Warmwater & Coldwater

TRUE BASIN CHARACTERISTICS

SURFACE AREA: 583.0 ha. (1440.6 a.)  
 FLUSHING RATE: 1.10 flushes/yr.  
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PLEASE NOTE THE FOLLOWING: The SAMPLE STATION # refers to the location sampled. The term TRUE BASIN is used to define areas within a lake that are separated by shallow reefs or shoals and therefore function as separate lakes. There are approximately 50 lakes in the state that have more than 1 True Basin. True Basin Characteristics are now being included in the first section of these reports to enable users of the Phosphorous Loading Methodology to better evaluate the data. If there is no data for a particular True Basin, True Basin Characteristics must be obtained from the DEP. PEMAQUID P has 1 True Basin(s).

**SECCHI DISK TRANSPARENCY GRAPHS:**



Note: 2010 graphs may indicate multiple readings taken on a given day.

**SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:**

[\* indicates that Secchi disk was visible at bottom of lake (or one reading used in calculation was visible)].

YEAR	MEAN COLOR	MEAN pH	MEAN ALK	MEAN COND.	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A(ppb)			TROPHIC STATE INDICES			
	(SPU)		(mg/l)	(uS	EPI	SURF	BOT.	PRO.	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	EPI PHOS		SEC	CHL
				/cm)	CORE	GRAB	GRAB	GRAB								C	G		
1981	-	-	-	-	-	-	-	-	3.5	3.5	3.5	2	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	3.0	3.5	5.0	2	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-	3.2	3.8	4.5	3	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-	2.8	4.3	5.3	4	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-	4.0	4.9	6.0	5	-	-	-	-	-	-	49
1987	24	6.90	8.0	44	-	-	-	-	3.3	4.6	5.8	6	-	-	-	-	-	-	53
1988	-	-	-	-	-	-	-	-	3.5	4.7	6.0	6	-	-	-	-	-	-	52
1989	-	-	-	-	-	-	-	-	2.6	4.0	6.0	6	-	-	-	-	-	-	60
1990	-	-	-	-	-	-	-	-	4.0	4.5	5.5	5	-	-	-	-	-	-	54
1991	32	6.83	10.0	41	9	-	-	-	3.5	4.6	5.7	5	3.5	3.5	3.5	-	-	-	53
1992	-	-	-	-	-	-	-	-	4.0	4.8	6.5	5	-	-	-	-	-	-	50
1997	-	-	-	-	14	-	35	-	3.1	4.0	4.6	5	4.4	4.4	4.4	-	-	-	60
1998	-	-	-	-	-	-	-	-	3.3	3.8	4.3	5	-	-	-	-	-	-	63
1999	20	-	7.5	47	13	-	47	-	3.6	4.3	4.8	1	5.8	5.8	5.8	-	-	-	-
2000	16	-	9.0	48	11	-	30	-	3.3	3.8	5.0	3	5.2	5.2	5.2	-	-	-	-

LAKE: PEMAQUID P (VLMP 15 )  
 TOWN: NOBLEBORO  
 COUNTY: LINCOLN

MIDAS: 5704  
 \*TRUE BASIN: 1  
 \*SAMPLE STATION: 2

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

YEAR	MEAN	MEAN	MEAN	MEAN	TOTAL PHOS. MEANS (ppb)				SECCHI DISK (m.)				CHLOROPHYLL A (ppb)			TROPHIC STATE INDICES			
	COLOR (SPU)	pH	ALK (mg/l)	COND. (uS /cm)	EPI	SURF	BOT.	PRO.	MIN.	MEAN	MAX.	N	MIN.	MEAN	MAX.	EPI PHOS		SEC	CHL
					CORE	GRAB	GRAB	GRAB								C	G		
2001	-	-	-	-	-	-	-	-	4.4	4.4	4.4	1	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	3.1	4.2	5.3	5	-	-	-	-	-	58	-
2003	-	-	-	-	-	-	-	-	3.4	4.1	5.0	6	-	-	-	-	-	59	-
2004	-	-	-	-	-	-	-	-	3.7	4.5	5.3	5	-	-	-	-	-	54	-
2005	-	-	-	-	-	-	-	-	3.3	4.1	5.1	5	-	-	-	-	-	59	-
2006	-	-	-	-	-	-	-	-	2.9	3.8	5.2	4	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	2.8	4.2	5.1	4	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	3.6	4.3	4.8	4	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	2.8	3.2	4.2	4	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	3.0	3.8	4.6	5	-	-	-	-	-	63	-
SUMMARY:	23	6.86	8.6	45	12	-	-	37	2.6	4.1	6.5	25	3.5	4.7	5.8	-	-	56	-

LATE SUMMER TEMPERATURE / DISSOLVED OXYGEN PROFILES:

DEPTH	SAMPLE DATE															
	08/12/99		08/04/00		08/21/00		08/18/01		08/25/02		09/02/04		08/22/06		08/29/07	
m	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm
0.0	23.0	8.0	23.9	99.9	21.3	99.9	24.4	7.4	24.1	7.6	23.1	7.9	23.7	8.2	23.6	8.4
1.0	22.8	7.8	23.8	99.9	21.3	99.9	24.2	7.4	23.7	7.4	23.1	7.9	23.3	8.2	26.6	8.3
2.0	22.7	7.7	23.5	99.9	21.6	6.7	24.0	7.3	23.7	7.5	23.1	7.9	22.9	8.1	23.5	8.3
3.0	22.6	7.5	23.4	99.9	21.2	99.9	23.9	7.3	23.6	7.5	23.1	7.9	22.8	8.0	23.3	8.2
4.0	22.6	7.5	23.2	99.9	21.2	99.9	23.9	7.2	23.6	7.5	23.0	7.6	22.8	7.9	22.2	7.5
5.0	22.5	7.5	22.5	99.9	21.1	99.9	23.3	5.7	23.6	7.4	22.0	6.3	22.2	6.8	21.4	6.9
6.0	22.5	7.5	19.2	99.9	18.5	99.9	19.4	0.7	20.7	0.5	21.6	5.4	19.7	2.0	20.1	4.7
7.0	18.5	0.8	16.8	99.9	15.9	99.9	15.9	0.4	17.6	0.4	19.8	1.8	16.3	1.0	17.3	1.3
8.0	14.7	0.8	14.9	99.9	13.8	99.9	13.2	0.4	15.2	0.3	16.7	0.7	14.1	0.9	14.0	1.3
9.0	12.7	0.8	13.9	99.9	13.5	99.9	10.9	0.3	13.6	0.3	14.5	0.7	13.1	0.9	12.0	1.2
10.0	11.1	0.7	12.6	99.9	12.5	99.9	10.1	0.3	12.6	0.3	12.0	0.6	12.2	0.8	10.5	1.1
11.0	10.8	0.6	11.8	99.9	11.7	99.9	9.4	0.3	12.0	0.3	11.4	0.5	11.6	0.8	10.1	1.0
12.0	10.5	0.6	11.2	99.9	11.2	99.9	9.0	0.3	11.5	0.2	10.8	0.5	11.1	0.7	9.9	1.0
13.0	-	-	11.2	99.9	11.2	99.9	8.8	0.2	11.4	0.2	-	-	10.9	0.7	9.9	1.0

## WATER QUALITY SUMMARY

### PEMAQUID POND, NOBLEBORO

MIDAS: 5704, Sample Station # 2

The Maine Department of Environmental Protection (ME-DEP) and the Volunteer Lake Monitoring Program (VLMP) have collaborated in the collection of lake data to evaluate water quality, track algal blooms, and determine water quality trends. This dataset does not include bacteria, mercury, or nutrients other than phosphorus.

Water quality monitoring data for Pemaquid Pond have been collected since 1981. During this period, 6 years of basic chemical information was collected in addition to Secchi Disk Transparencies (SDT). In summary, the water quality of Pemaquid Pond is considered average based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Pemaquid Pond is moderate.

Water Quality Measures: Pemaquid Pond is a non-colored lake (average color 25 SPU) with an average SDT of 4.8 m (13.8 ft). Water column TP for Pemaquid Pond is moderately high, ranging from 9-14 parts per billion (ppb) with an average of 9 ppb. Chla values are moderate, ranging from 1.4 - 5.5 ppb with an average of 4.1 ppb. Recent dissolved oxygen (DO) profiles show moderate DO depletion in deep areas of the lake. The potential for phosphorus to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate to high. Oxygen levels below 5 parts per million stress certain cold water fish and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species.

See ME-DEP Explanation of Lake Water Quality Monitoring Report for measured variable explanations. Additional lake information can be found on the Internet at <http://www.lakesofmaine.org/> and/or <http://www.maine.gov/dep/blwq/lake.htm>, or telephone the ME-DEP at 207-287-3901 or the VLMP at 207-783-7733.

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